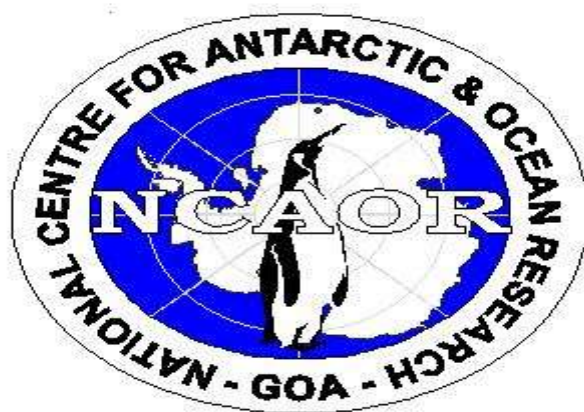


TENDER DOCUMENT FOR



SUPPLY, INSTALLATION, COMMISSIONING & TRAINING OF MULTI COLLECTOR-INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER (MC- ICP-MS) SYSTEM

NATIONAL CENTRE FOR ANTARCTIC & OCEAN RESEARCH

(Ministry of Earth Sciences, Govt. Of India)

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NATIONAL CENTRE FOR ANTARCTIC & OCEAN RESEARCH
 (Ministry of Earth Sciences, Govt. Of India),
 HEADLAND SADA, VASCO-DA-GAMA,
 GOA - 403 804

TENDER NO. NCAOR/LAB-2343/PT-11
Supply, Installation, Commissioning & Training of Multi Collector-Inductively Coupled Plasma Mass Spectrometer (MC-ICP-MS) System.

1.	Supply, Installation, Commissioning & Training of Multi Collector-Inductively Coupled Plasma Mass Spectrometer (MC-ICP-MS) System.	
	Specifications	As per Annexure-I
	Quantity	01 No.
2.	General Terms and Conditions	As per Annexure II
3.	Cost of Tender Documents (In Person)	US \$ 50.00 Rs. 2000.00
4.	Cost of Tender Documents (By Post)	US \$ 65.00 Rs. 2050.00
5.	EMD	<p>Tender documents can be downloaded by tenderers from NCAOR website. In case a tenderer is using the documents and forms downloaded from the website, the cost of tender documents shall be sent in the form of Bank Draft in a separate envelope along with the tender.</p> <p>A) Foreign Bidders shall submit EMD along with their tender, in the form of a bank guarantee only for a sum of US \$ 1700.00 (US \$ One Thousand Seven Hundred only)</p> <p>B) Indian Bidders shall submit EMD along with their tender, either by DD drawn in favor of NCAOR, for a sum of Rs. 1,00,000/- (Rupees One Lakh only) payable at Vasco-da-Gama only.</p> <p style="text-align: center;">Or</p> <p>In the form of a bank guarantee for a sum of Rs. 1,00,000/- (Rupees One Lakh only)</p>
6.	Last Date and time for issue of tender documents	MONDAY 03.08.2015 1600Hrs (IST)
7.	Last Date and time for submission of sealed quotations	TUESDAY 04.08.2015 1700Hrs (IST)
8.	Date and time of tender opening	WEDNESDAY 05.08.2015 1000Hrs (IST)

Annexure-I**Technical Specifications for procurement/installation of Multi Collector-Inductively Coupled Plasma Mass Spectrometer (MC-ICP-MS) at National Centre for Antarctic & Ocean Research (NCAOR), Goa, India.**

The **National Centre for Antarctic & Ocean Research (NCAOR), Goa, India** is a premier research institute carrying cutting edge research in the field of earth, oceans and cryospheric sciences. The institute is planning to set up MC-ICPMS laboratory to measure abundances of element and isotopes in natural, environmental and biological samples. The Institute invites Sealed Tenders for the procurement, commissioning, standardization and calibration of the MC-ICPMS as per the technical specifications given below. (In the following text the **MC-ICPMS** stands for **Multi Collector Inductively Coupled Plasma Mass Spectrometer**).

PLEASE QUOTE YOUR SPECIFICATIONS IN THE SAME ORDER AS PER THIS DOCUMENT. A COMPLIANCE STATEMENT MUST BE SUBMITTED ITEM-WISE SHOWING YOUR COMPLIANCE/DEVIATIONS IN CLEAR TERMS. Hard and soft copies of the quote MUST be inserted along the documents.

The instrument MC-ICPMS should be versatile in nature, capable of measuring abundances of various elements and isotopes with high precision and accuracy that require for wide range of applications in the field of Earth, Ocean and Cryospheric Sciences. The utilization of the instrument is not restricted to the measurement scheme below (**see table below**), but research and development in new techniques, analytical methodology and isotopic systematics also form an essential activity using the proposed instrument. Following are some of the isotope systematics we intend to measure in different samples, both in solution and also should be compatible with in-situ Laser Ablation mode.

Intended Analytical Programme (Analytical Needs)	
Systematics	Masses to be measured
U-Th series dating	228, 229, 230, 232, 234, 235, 238
U/Th/Pb Geochronology	202, 204, 205, 206, 207, 208, 235, 238
Hf systematics	180, 179, 178, 177, 176, 175, 174, 173, 172, 171
Ni systematics	56, 58, 60, 61, 62
Fe systematics	52, 53, 54, 56, 57, 58, 60
Cr systematics	49, 50, 51, 52, 53, 54, 56
Sm-Nd systematics	142, 143, 144, 145, 146, 147, 148, 150
Ce systematics	136, 138, 140, 142
Mo systematics	100, 99, 98, 97, 96, 95, 94, 92
Sr (Rb+Kr) systematics	83, 84, 85, 86, 87, 88
Zn systematics	62, 63, 64, 65, 66, 67, 68, 70
Cu systematics	63, 65

Si systematics	28, 29, 30
Ca systematics	49, 48, 47, 46, 44, 43, 42
Mg systematics	24, 25, 26
B systematics	10, 11
Li systematics	6, 7

SECTION – A: MAIN INSTRUMENT (MC-ICPMS)

The MC-ICPMS should have high-sensitivity, high-mass resolution, mass-bias stability (both short term and long term) and good reproducibility. Provisions for both solution and solid (laser ablation) mode of sample introduction must exist with seamless integration between the mass spectrometer and the sample introduction systems, both in laser-mode as well as in solution-mode. The MC-ICPMS must be supplied with all its peripherals (e.g., plasma interface, ICP source, desolvating inlet system, auto-sampler, computer control, etc.). The instrument must be supported by advanced operating software capable of unattended as well as remote operation through internet and suitable data reduction routines along with capability for real-time monitoring of all important instrumental parameters. The instrument should be capable of measuring the element/isotope systems used in geochemistry from mass 6 (Lithium) to mass 238 (Uranium).

I. MC-ICPMS unit

(1) Sample introduction system for solution mode should have standard & complete nebulizer system including

1.1 Peristaltic pump with software controlled variable uptake speed

1.2 Nebulizers and spray chambers:

(a) Self aspirating PFA nebulizers with provision of sample flow rates of 20, 50, 100 and 200 microliters/minute. This should have provision of simultaneous introduction of sample from solution and laser ablation modes equipped with suitable mass flow controller.

(b) Desolvating nebulizer for isotope ratio measurement with built-in gas control system and appropriate temperature controller selectable through software for both membrane and spray chamber. It should have dedicated adjustable temperature controllers for both spray chamber and membrane desolvator.

(c) Micro-concentric Nebulizer should operate at low flow rates with efficiency in the range of 50%. It should have very low sample flow rate (as low as 10 μ L/min). It should be HF resistant and should have self aspirating capability.

(d) Spray chambers of quartz, glass, and PFA which are compatible to the MC-ICPMS should be quoted.

(e) Micro-cyclonic spray chamber (Quartz/PFA) with low internal volume, faster wash in/wash out characteristics, less spiking,

higher aerosol transport efficiency. It should fit any 6mm nebulizer.

- 1.3 Auto sampler:** The compact auto sampler should have small footprint, short sample path (essential for smaller sample size) and a protective cover to prevent sample contamination. It should have dual flowing rinse stations, which can operate in gas displacement or peristaltic-pump mode. It should come with online and offline dilution systems. It should have at least 48 sample holders and designed for use with sample volumes as low as 500 μ L and up to 15ml. Other options of sample rack configuration, if any, should be quoted separately. The operational voltage should be 240VAC (50Hz). It should be compatible and integrated with MC-ICPMS software.

(2) ICP-Source

- 2.1** Stable crystal-controlled solid state free-running RF generator at ~27 MHz frequency band, attached to a 3-4 turn load coil with standard programmable RF power at least up to 2 KW and auto-tuning capability.
- 2.2** Self centering/alignment facility of plasma torch with computer assisted X-Y-Z movement for optimal positioning for maximum analyte signal gain. Different injector tubes and of various diameters should be included.
- 2.3** Additional Plasma torch: Should be compatible with the quoted ICP source
- 2.4** ICP source should be compatible with alternate sample introduction system that is commercially available (GC, IC etc.)

(3) Ion Extraction Interface

Standard combination of outer sampler cone and an inner skimmer cone should be provided for maximum sensitivity and precision. The interface should have efficient ion transmission features for higher sensitivity.

(4) Mass Analysers

- 4.1** Double focussing-type Mass Analysers consisting of electrostatic analyser (ESA) and electromagnetic analyser providing high resolution capability for obtaining flat-top peaks for various isotopes. Highly stable ESA with fluctuations not exceeding ± 15 ppm.
- 4.2** Electromagnetic field of ± 50 ppm stability and extended (stigmatic focussing) geometry configuration.
- 4.3** Low hysteresis laminated magnet with efficient temperature control and compensation to achieve high resolution.
- 4.4 Minimum required mass resolution:** Resolving power (at 10% valley definition) as the ratio ($M/\Delta M$) of the instrument should be selectable at least in three categories - Standard (low), Medium and High. Resolution as a function of relative ion transmission should be as follows:

Resolution	M/ΔM	Relative transmission**
Standard (low)	$\geq 300-400$	100%
Medium	≥ 2000	15-20%
High	≥ 8000	10-5%

** *Relative transmission is with respect to standard resolution taken as 100%*

4.5 Resolving Power: The instrument should be able to achieve high resolution with resolving power of >8000 (e.g. mass ^{56}Fe , which can resolve the molecular interference from ArO isotopes and with flat topped peak). The specification should clearly mention the relative transmission for various resolving powers.

(5) Detector specifications

At least nine (9) Faraday cups (FC), at least five (5) ion counting (IC) devices and an axial ion counting devices in the detector block with necessary electronics and amplifiers. A suitable combination of Faraday Cups and Ion Counting devices should be provided to cater the needs of simultaneous collection of ions of different masses required in a wide range of applications of isotope systematics used in Earth system Sciences.

5.1 Faraday cup

Dynamic Range: 50V for $10^{11} \Omega$ resistor
 Noise: $<20 \mu\text{V}$ at 4 second integration time
 Decay: <10 ppm after 2 seconds

5.2 Ion counting device/Multiplier

Dark noise: <10 cpm
 Stability: better than 2% per hour
 Linearity: better than 0.2% up to 10^{-13} Amp current

5.3 Amplifiers and resistors

Should have resistors of 10^{10} , 10^{11} , $10^{12} \Omega$ or higher, including gain calibration to enhance the dynamic range of signal measurements with smooth switching of amplifiers (10^{10} , 10^{11} , $10^{12} \Omega$ or higher) to any collector position.

Provisions should exist that any combination of faraday cup and amplifier can be switched routinely with ease whenever needed through the software.

Faraday cups and associated amplifier system should have minimum calibration error (cup bias).

Configuration with higher dynamic range of signal measurement will be preferred. All the amplifiers for the Faraday detectors

should be placed in evacuated and temperature controlled enclosure to ensure their performance independent of external environment.

(6) Abundance sensitivity

Abundance sensitivity should be better than 5 ppm (without retardation /RPQ/WARP filters) which can be improved to better than 500 ppb by using retardation filter without losing much of the transmission.

6.1 Retardation/deceleration filters

To enhance the abundance sensitivity for analysis of some of the isotope systems (e.g. for ^{237}U with respect to ^{238}U mass should be within 5ppm)

(7) Vacuum System

Sturdy pumping systems should achieve vacuum levels (i) better than 2×10^{-8} mbar in the collector area and (ii) better than 10^{-7} mbar in the electrostatic analyzer area.

7.1 Vacuum gauges should be placed at all the necessary positions and should be integrated with the software.

7.2 Isolation valves should be placed and integrated properly with the software which ensures the minimum vacuum break during accidental power loss or scheduled maintenance.

(8) Computer and Software

8.1 PC: MC-ICPMS and other attached supporting system to be driven by respective dedicated computer systems with latest available configuration of reputed international brand should be quoted. The computer system must include **a dual layer DVD** writer with double layer capability for archiving, 4 number of USB ports, a wireless network card. The computer system should be supplied with a twin monitor (24"LED screen each). Other utility software like MS-Office, Adobe suite, CorelDraw etc. must also be included. In addition, vendor should supply two external storage device of 2 TB capacities each.

8.2 Printer: Colour laser printer with following minimum specifications.
Colour Laser Printer with USB as well as ethernet (10/100) connectivity; Automatic Duplex printing (both side printing); 1200X1200 print quality or better.

8.3 Software: Software to provide fully integrated operation of the machine and sample inlet systems. It should also support other peripheral systems (such as third party laser ablation and auto-sampler). The

software should be capable of safe machine operation, able to read output values and all-important parameters.

Software upgrades must be provided whenever it is available (at least for 10 years) with no additional cost.

Software for remote handling and online servicing/remote diagnostic (from customer support of manufacturer) of the instrument is required.

Support to be provided from customer side (such as Internet, telephone line, specific cables etc.) should be mentioned clearly.

Offline data processing software: Vendor should provide off-line data processing and analysis software for multi-users.

II. Supply of Standards

A large number/variety of reference mineral/rock standards, isotope standards, enriched spikes and pure mass spectroscopy grade element solutions as mentioned below should be quoted to cover the intended applications.

[A] Required standards and spikes for solution mode

Standards

- (i) Fe: IRMM 014
- (ii) Mg: SRM 980
- (iii) Sr: SRM 987
- (iv) Nd: JNdi-1 and AMES
- (v) Mo: JMC ICP standard & Isotope standard
- (vi) Li: JB2 & LSVEC
- (vii) B: NIST SRM 951
- (viii) PGE (Pt, Ir, Pd, Os) standard
- (ix) Hf (JMC475)
- (x) Re
- (xi) Os
- (xii) Ca
- (xiii) Ni
- (xiv) Mn
- (xv) Cr
- (xvi) Pb
- (xvii) Ag
- (xviii) Zr
- (xix) Si
- (xx) Tl
- (xxi) Ru
- (xxii) W

[B] Enriched isotopes (Spikes)

- (i) ^7Li

- (ii) Fe (^{57}Fe and ^{58}Fe)
- (iii) ^{85}Rb
- (iv) ^{84}Sr
- (v) Mo (^{95}Mo , ^{97}Mo and ^{100}Mo)
- (vi) Ca (^{48}Ca , ^{43}Ca , ^{42}Ca)
- (vii) ^{150}Nd
- (viii) ^{152}Sm
- (ix) ^{182}W
- (x) ^{185}Re
- (xi) ^{190}Os
- (xii) ^{229}Th
- (xiii) Pb (^{202}Pb and ^{205}Pb)

Supply of all the reference standards and spikes mentioned above should be included in the quotation.

Note: Any ancillary components/equipment/materials necessary to install and run the system, in addition to the above, should also be indicated and quoted.

III. Instrument Performance Guarantee

Quotation **MUST** essentially include full performance figure of merits of the instruments, including precision. Following are some of the guidelines that the supplier must guarantee to demonstrate on the machine.

(A)]The accuracy (for available standards) of the isotopic measurements at 200 ppb concentration should be demonstrated for the following:

- $^{87}\text{Sr}/^{86}\text{Sr}$ (± 50 ppm, 2 sigma).
- $^{143}\text{Nd}/^{144}\text{Nd}$ (± 50 ppm, 2 sigma).
- $^{206}\text{Pb}/^{204}\text{Pb}$ ($\pm 0.15\%$)

(The accuracy should be demonstrated with respect to accepted reference values or TIMS values).

(B) The following table specifies the sensitivity and precision required to be demonstrated for isotope ratios of various elements:

Elements	Sensitivity * Better than V/ppm	Isotopic Ratios	Internal Precision (2RSD **) better than	External[†] precision (2RSD) better than
Lithium	60	$^6\text{Li}/^7\text{Li}$	0.8 ‰	1‰
Iron	15	$\delta^{56}\text{Fe}$	0.05‰	0.05‰
Strontium	100	$^{87}\text{Sr}/^{88}\text{Sr}$	25ppm	50ppm

Neodymium	150	$^{143}\text{Nd}/^{144}\text{Nd}$	25 ppm	50ppm
Hafnium	175	$^{176}\text{Hf}/^{177}\text{Hf}$	40ppm	50ppm
Uranium	200	$^{235}\text{U}/^{238}\text{U}$	500ppm	1000ppm
Lead	200	$^{206}\text{Pb}/^{204}\text{Pb}$	200ppm	300ppm

* On Faraday cup with standard amplifier under dry plasma (desolvating nebulizer) and solution uptake of ~0.1 ml/minute

† Precision is defined as 2σ of 10 subsequent runs (sample-standard bracketing). In case of Li it or should be 2σ of five delta values (total analysis time should be close to or less than 20min for each run). The sample concentration should be 1 ppm for Li, 200 ppb for Sr, Nd, Hf, U and Pb.

** RSD = Relative Standard Deviation

(C) Instrument Performance:

- (i) Quotation to include full specification of mass spectrometer performance, including both internal and external precision in measurement for most of the isotope systems mentioned above. The service engineer should carry out various performance parameters of the MC-ICPMS system according to those mentioned in the brochure and/or quoted in the technical bid submitted by the vendor, whichever is better both at factory before delivery and at NCAOR after delivery. Towards this the supplier should provide test certificates.
- (ii) Quotation to include clear, unambiguous statements of expected routine performance of the various preparation systems in combination with the mass spectrometers. It should state the overall precisions derived from analyses of multiple replicate samples of standard materials, with a clear indication of any effects in relation to sample size.

SECTION -B: ACCESSORIES AND SPARES

The offer should include all accessories/ spares/ consumables for the entire system and its peripherals, which are not covered under the 3 years comprehensive warranty and are essential (in the opinion of supplier) for ensuring trouble-free performance of the system at least for 3 years. The supplier will be solely responsible for any additional requirements of these accessories/ spares/ consumables within this period. Where operation requires provision of liquid, gases, compressed air or compressed gases, the offer should include all appropriate connectors, valves and control systems for these. A list of spares and consumables should be provided.

- a. The offer should also include following essential accessories and quoted preferably in Indian rupees.
- b. 30 KVA reliable 3-phase UPS (only from reputed brands/ manufacturers) with one hour back up time with power output quality as per instrument's requirements should also be quoted separately.
- c. **Argon Gas Cylinders:** Two manifold of 6 cylinders each (12 cylinders) with auto switchover. Eight additional cylinders (for back up) must be supplied along with the instrument (total 20 Ar filled cylinders).
- d. A fume exhaust system that comply the international standards should be supplied and installed at the site for removal of the gases emerging from MC-ICPMS system.

SECTION C: ADDITIONAL GENERAL REQUIREMENTS

- a. The technical specifications given above are minimum indicative only. Ease of operation, maintenance, use of latest technology with proven advantage and excellent **after sales service** facilities are important factors in evaluation process.
- b. Name with full credentials and experience of the factory trained service engineers currently on roll in India and place of normal residency must be submitted with the offered quotation. Please indicate how many of them received training on the quoted model.
- c. Full service manuals with complete circuit diagrams and circuit descriptions to be supplied both as hard copy and CDs, along with diagnostic tools including interface cards and software, plus any specialized mechanical tools required for instrument servicing or repair.
- d. Where operation requires provision of standards, gases, compressed air or compressed gases, the quotation should include provision of all appropriate gas cylinders, gas lines, connectors, valves and control systems for these.
- e. Quotation should include all cost including logistics required to complete the installation at NCAOR.
- f. The Vendor should certify and confirm availability of spares, service support and up gradation for at least 10 years after the warranty period.
- g. Any equipment of component procured locally and supplied with the instrument should be quoted in Indian Rupees.
- h. List of user laboratories of similar instrument configuration and geological application must be provided with contact details (e-mail) of the person-in-charge of the instrument, model and date of installation.
- i. NCAOR may opt for demonstration of any technical specifications and performance of the quoted model any user site in India as a part of technical evaluation. Cost of travel and accommodation of NCAOR personnel will be borne by NCAOR. The vendor should facilitate demonstration.

SECTION D: Training

- (i) After successful installation of the system and its peripherals, selected scientific and technical personnel from NCAOR should be provided with hands-on and in-depth training on the operation, maintenance and application of the MC-ICPMS system by factory engineer for a period of not less than 15 working days. Vendor should quote all inclusive for travel, accommodation etc.
- (ii) Training in routine operation and maintenance of all instruments and modules supplied, to include instruction in fault diagnosis, servicing and on-site repair procedures, to be imparted to the user scientists deputed for the same at the installation site at NCAOR.

SECTION E: Warranty

Supplier should provide comprehensive onsite warranty (including parts and labour) for 3 years (36 months) including all locally supplied items after successful installation of the system. The supplier should also quote for annual service maintenance contract (breakdown visits and two service visits) for five years after the warranty period.

SECTION F: Installation

Pre-installation requisites

Comprehensive guidelines/requisites for development of pre-installation infrastructure, including requirement of air-conditioning, dehumidifier etc. with their specifications, to be provided.

Installation:

The complete installation of the supplied MC-ICPMS system should be carried out by the factory engineer deputed from the manufacturing plant. All the expenses including travel, accommodation etc. towards this should be included in the quote.

It is the responsibility of the vendors to ensure that all necessary essential accessory and ancillary items are quoted for carrying out the standardization, optimization and calibration for objective applications including standards, chemicals, gases and consumables. The supplied system should be complete in itself in all respect to take up the sample analysis at the NCAOR premises. The institute shall provide none other than a “Three phase” Line and appropriate laboratory ambiance.

Technical Compliance Statement for Multi Collector-Inductively Coupled Plasma Mass Spectrometer (MC-ICP-MS) System.

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	<p>SECTION – A: MAIN INSTRUMENT (MC-ICPMS) The MC-ICPMS should have high-sensitivity, high-mass resolution, mass-bias stability (both short term and long term) and good reproducibility. Provisions for both solution and solid (laser ablation) mode of sample introduction must exist with seamless integration between the mass spectrometer and the sample introduction systems, both in laser-mode as well as in solution-mode. The MC-ICPMS must be supplied with all its peripherals (e.g., plasma interface, ICP source, desolvating inlet system, auto-sampler, computer control, etc.). The instrument must be supported by advanced operating software capable of unattended as well as remote operation through internet and suitable data reduction routines along with capability for real-time monitoring of all important instrumental parameters. The instrument should be capable of measuring the element/isotope systems used in geochemistry from mass 6 (Lithium) to mass 238 (Uranium).</p>		
	<p>I. MC-ICPMS unit (1) Sample introduction system for solution mode should have standard & complete nebulizer system including</p>		
	<p>1.1 Peristaltic pump with software controlled variable uptake speed</p>		
	<p>1.2 Nebulizers and spray chambers:</p>		
	<p>(a) Self aspirating PFA nebulizers with provision of sample flow rates of 20, 50, 100 and 200 microliters/minute. This should have provision of simultaneous introduction of sample from solution and laser ablation modes equipped with suitable mass flow controller.</p>		
	<p>(b) Desolvating nebulizer for isotope ratio measurement with built-in gas control system and appropriate temperature controller selectable through software for both membrane and spray chamber. It should have dedicated adjustable temperature controllers for both spray chamber and membrane desolvator.</p>		
	<p>(C) Micro-concentric Nebulizer should operate at low flow rates with efficiency in the range of 50%. It should have very low sample flow rate (as low as 10µL/min). It should be HF resistant and should have self aspirating capability.</p>		
	<p>(D) Spray chambers of quartz, glass, and PFA which are compatible to the MC-ICPMS should be quoted.</p>		
	<p>(E) Micro-cyclonic spray chamber (Quartz/PFA) with low internal volume, faster wash in/wash out characteristics, less spiking, higher aerosol transport efficiency. It should fit any 6mm nebulizer.</p>		

	<p>1.3 Auto sampler: The compact auto sampler should have small footprint, short sample path (essential for smaller sample size) and a protective cover to prevent sample contamination. It should have dual flowing rinse stations, which can operate in gas displacement or peristaltic-pump mode. It should come with online and offline dilution systems. It should have at least 48 sample holders and designed for use with sample volumes as low as 500μL and up to 15ml. Other options of sample rack configuration, if any, should be quoted separately. The operational voltage should be 240VAC (50Hz). It should be compatible and integrated with MC-ICPMS software.</p>		
	<p>(2) ICP-Source 2.1 Stable crystal-controlled solid state free-running RF generator at ~27 MHz frequency band, attached to a 3-4 turn load coil with standard programmable RF power at least up to 2 KW and auto-tuning capability.</p>		
	<p>2.2 Self centering/alignment facility of plasma torch with computer assisted X-Y-Z movement for optimal positioning for maximum analyte signal gain. Different injector tubes and of various diameters should be included.</p>		
	<p>2.3 Additional Plasma torch: Should be compatible with the quoted ICP source</p>		
	<p>2.4 ICP source should be compatible with alternate sample introduction system that is commercially available (GC, IC etc.)</p>		
	<p>(3) Ion Extraction Interface Standard combination of outer sampler cone and an inner skimmer cone should be provided for maximum sensitivity and precision. The interface should have efficient ion transmission features for higher sensitivity.</p>		
	<p>(4) Mass Analysers 4.1 Double focussing-type Mass Analysers consisting of electrostatic analyser (ESA) and electromagnetic analyser providing high resolution capability for obtaining flat-top peaks for various isotopes. Highly stable ESA with fluctuations not exceeding ± 15ppm.</p>		
	<p>4.2 Electromagnetic field of ± 50ppm stability and extended (stigmatic focussing) geometry configuration.</p>		
	<p>4.3 Low hysteresis laminated magnet with efficient temperature control and compensation to achieve high resolution.</p>		
	<p>4.4 Minimum required mass resolution: Resolving power (at 10% valley definition) as the ratio ($M/\Delta M$) of the instrument should be selectable at least in three categories - Standard (low), Medium and High. Resolution as a function of relative ion transmission should be as follows:</p>		

Resolution	M/ΔM	Relative transmission**
Standard (low)	≥ 300 -400	100%
Medium	≥ 2000	15-20%
High	≥ 8000	10-5%

*** Relative transmission is with respect to standard resolution taken as 100%*

4.5 Resolving Power: The instrument should be able to achieve high resolution with resolving power of >8000 (e.g. mass ^{56}Fe , which can resolve the molecular interference from ArO isotopes and with flat topped peak). The specification should clearly mention the relative transmission for various resolving powers.

(5) Detector specifications
At least nine (9) Faraday cups (FC), at least five (5) ion counting (IC) devices and an axial ion counting devices in the detector block with necessary electronics and amplifiers. A suitable combination of Faraday Cups and Ion Counting devices should be provided to cater the needs of simultaneous collection of ions of different masses required in a wide range of applications of isotope systematics used in Earth system Sciences.

5.1 Faraday cup
Dynamic Range: 50V for $10^{11} \Omega$ resistor
Noise: $<20 \mu\text{V}$ at 4 second integration time
Decay: <10 ppm after 2 seconds

5.2 Ion counting device/Multiplier
Dark noise: <10 cpm
Stability: better than 2% per hour
Linearity: better than 0.2% up to 10^{-13} Amp current

5.3 Amplifiers and resistors
Should have resistors of 10^{10} , 10^{11} , $10^{12} \Omega$ or higher, including gain calibration to enhance the dynamic range of signal measurements with smooth switching of amplifiers (10^{10} , 10^{11} , $10^{12} \Omega$ or higher) to any collector position.
Provisions should exist that any combination of faraday cup and amplifier can be switched routinely with ease whenever needed through the software.
Faraday cups and associated amplifier system should have minimum calibration error (cup bias).
Configuration with higher dynamic range of signal measurement will be preferred. All the amplifiers for the Faraday detectors should be placed in evacuated and temperature controlled enclosure to ensure their performance independent of external environment.

	<p>(6)Abundance sensitivity Abundance sensitivity should be better than 5 ppm (without retardation /RPQ/WARP filters) which can be improved to better than 500 ppb by using retardation filter without losing much of the transmission.</p>		
	<p>6.1 Retardation/deceleration filters To enhance the abundance sensitivity for analysis of some of the isotope systems (e.g. for ²³⁷U with respect to ²³⁸U mass should be within 5ppm)</p>		
	<p>(7)Vacuum System Sturdy pumping systems should achieve vacuum levels (i) better than 2×10⁻⁸ mbar in the collector area and (ii) better than 10⁻⁷ mbar in the electrostatic analyzer area. 7.1 Vacuum gauges should be placed at all the necessary positions and should be integrated with the software. 7.2 Isolation valves should be placed and integrated properly with the software which ensures the minimum vacuum break during accidental power loss or scheduled maintenance.</p>		
	<p>(8)Computer and Software 8.1 PC: MC-ICPMS and other attached supporting system to be driven by respective dedicated computer systems with latest available configuration of reputed international brand should be quoted. The computer system must include a dual layer DVD writer with double layer capability for archiving, 4 number of USB ports, a wireless network card. The computer system should be supplied with a twin monitor (24"LED screen each). Other utility software like MS-Office, Adobe suite, CorelDraw etc. must also be included. In addition, vendor should supply two external storage device of 2 TB capacities each.</p>		
	<p>8.2 Printer: Colour laser printer with following minimum specifications. Colour Laser Printer with USB as well as ethernet (10/100) connectivity; Automatic Duplex printing (both side printing); 1200X1200 print quality or better.</p>		
	<p>8.3 Software: Software to provide fully integrated operation of the machine and sample inlet systems. It should also support other peripheral systems (such as third party laser ablation and auto-sampler). The software should be capable of safe machine operation, able to read output values and all-important parameters. Software upgrades must be provided whenever it is available (at least for 10 years) with no additional cost. Software for remote handling and online servicing/remote diagnostic (from customer support of manufacturer) of the instrument is required.</p>		

	<p>Support to be provided from customer side (such as Internet, telephone line, specific cables etc.) should be mentioned clearly.</p> <p>Offline data processing software: Vendor should provide off-line data processing and analysis software for multi-users.</p>		
	<p>II. Supply of Standards</p> <p>A large number/variety of reference mineral/rock standards, isotope standards, enriched spikes and pure mass spectroscopy grade element solutions as mentioned below should be quoted to cover the intended applications.</p>		
	<p>[A] Required standards and spikes for solution mode</p> <p>Standards</p> <ul style="list-style-type: none"> (i) Fe: IRMM 014 (ii) Mg: SRM 980 (iii) Sr: SRM 987 (iv) Nd: JNdi-1 and AMES (v) Mo: JMC ICP standard & Isotope standard (vi) Li: JB2 &LSVEC (vii) B: NIST SRM 951 (viii) PGE (Pt, Ir, Pd, Os) standard (ix) Hf (JMC475) (x) Re (xi) Os (xii) Ca (xiii) Ni (xiv) Mn (xv) Cr (xvi) Pb (xvii) Ag (xviii) Zr (xix) Si (xx) Tl (xxi) Ru (xxii) W 		
	<p>[B] Enriched isotopes (Spikes)</p> <ul style="list-style-type: none"> (i) ⁷Li (ii) Fe (⁵⁷Fe and ⁵⁸Fe) (iii) ⁸⁵Rb (iv) ⁸⁴Sr (v) Mo (⁹⁵Mo, ⁹⁷Mo and ¹⁰⁰Mo) (vi) Ca (⁴⁸Ca, ⁴³Ca, ⁴²Ca) (vii) ¹⁵⁰Nd (viii) ¹⁵²Sm (ix) ¹⁸²W (x) ¹⁸⁵Re (xi) ¹⁹⁰Os (xii) ²²⁹Th (xiii) Pb (²⁰²Pb and ²⁰⁵Pb) 		

<p>Supply of all the reference standards and spikes mentioned above should be included in the quotation.</p> <p>Note: Any ancillary components/equipment/materials necessary to install and run the system, in addition to the above, should also be indicated and quoted.</p>																																										
<p>III. Instrument Performance Guarantee</p> <p>Quotation MUST essentially include full performance figure of merits of the instruments, including precision. Following are some of the guidelines that the supplier must guarantee to demonstrate on the machine.</p>																																										
<p>(A)]The accuracy (for available standards) of the isotopic measurements at 200 ppb concentration should be demonstrated for the following:</p> <p style="padding-left: 40px;">$^{87}\text{Sr}/^{86}\text{Sr}$ (± 50 ppm, 2 sigma). $^{143}\text{Nd}/^{144}\text{Nd}$ (± 50 ppm, 2 sigma). $^{206}\text{Pb}/^{204}\text{Pb}$ ($\pm 0.15\%$)</p> <p>(The accuracy should be demonstrated with respect to accepted reference values or TIMS values).</p>																																										
<p>(B)The following table specifies the sensitivity and precision required to be demonstrated for isotope ratios of various elements:</p>																																										
<table border="1" data-bbox="219 1192 1128 1717"> <thead> <tr> <th>Elements</th> <th>Sensitivity* Better than V/ppm</th> <th>Isotopic Ratios</th> <th>Internal Precision (2RSD**) better than</th> <th>External[†] precision (2RSD) better than</th> </tr> </thead> <tbody> <tr> <td>Lithium</td> <td>60</td> <td>$^6\text{Li}/^7\text{Li}$</td> <td>0.8 ‰</td> <td>1‰</td> </tr> <tr> <td>Iron</td> <td>15</td> <td>$\delta^{56}\text{Fe}$</td> <td>0.05‰</td> <td>0.05‰</td> </tr> <tr> <td>Strontium</td> <td>100</td> <td>$^{87}\text{Sr}/^{88}\text{Sr}$</td> <td>25ppm</td> <td>50ppm</td> </tr> <tr> <td>Neodymium</td> <td>150</td> <td>$^{143}\text{Nd}/^{144}\text{Nd}$</td> <td>25 ppm</td> <td>50ppm</td> </tr> <tr> <td>Hafnium</td> <td>175</td> <td>$^{176}\text{Hf}/^{177}\text{Hf}$</td> <td>40ppm</td> <td>50ppm</td> </tr> <tr> <td>Uranium</td> <td>200</td> <td>$^{235}\text{U}/^{238}\text{U}$</td> <td>500ppm</td> <td>1000ppm</td> </tr> <tr> <td>Lead</td> <td>200</td> <td>$^{206}\text{Pb}/^{204}\text{Pb}$</td> <td>200ppm</td> <td>300ppm</td> </tr> </tbody> </table> <p>* On Faraday cup with standard amplifier under dry plasma (desolvating nebulizer) and solution uptake of ~0.1 ml/minute</p>	Elements	Sensitivity* Better than V/ppm	Isotopic Ratios	Internal Precision (2RSD**) better than	External [†] precision (2RSD) better than	Lithium	60	$^6\text{Li}/^7\text{Li}$	0.8 ‰	1‰	Iron	15	$\delta^{56}\text{Fe}$	0.05‰	0.05‰	Strontium	100	$^{87}\text{Sr}/^{88}\text{Sr}$	25ppm	50ppm	Neodymium	150	$^{143}\text{Nd}/^{144}\text{Nd}$	25 ppm	50ppm	Hafnium	175	$^{176}\text{Hf}/^{177}\text{Hf}$	40ppm	50ppm	Uranium	200	$^{235}\text{U}/^{238}\text{U}$	500ppm	1000ppm	Lead	200	$^{206}\text{Pb}/^{204}\text{Pb}$	200ppm	300ppm		
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	<p>† Precision is defined as 2σ of 10 subsequent runs (sample-standard bracketing). In case of Li it or should be 2σ of five delta values (total analysis time should be close to or less than 20min for each run). The sample concentration should be 1 ppm for Li, 200 ppb for Sr, Nd, Hf, U and Pb.</p> <p>** RSD = Relative Standard Deviation</p>		
	<p>(C) Instrument Performance:</p> <p>(i) Quotation to include full specification of mass spectrometer performance, including both internal and external precision in measurement for most of the isotope systems mentioned above. The service engineer should carry out various performance parameters of the MC-ICPMS system according to those mentioned in the brochure and/or quoted in the technical bid submitted by the vendor, whichever is better both at factory before delivery and at NCAOR after delivery. Towards this the supplier should provide test certificates.</p>		
	<p>(ii) Quotation to include clear, unambiguous statements of expected routine performance of the various preparation systems in combination with the mass spectrometers. It should state the overall precisions derived from analyses of multiple replicate samples of standard materials, with a clear indication of any effects in relation to sample size.</p>		
	<p>SECTION –B: ACCESSORIES AND SPARES</p> <p>The offer should include all accessories/ spares/ consumables for the entire system and its peripherals, which are not covered under the 3 years comprehensive warranty and are essential (in the opinion of supplier) for ensuring trouble-free performance of the system at least for 3 years. The supplier will be solely responsible for any additional requirements of these accessories/ spares/ consumables within this period. Where operation requires provision of liquid, gases, compressed air or compressed gases, the offer should include all appropriate connectors, valves and control systems for these. A list of spares and consumables should be provided.</p>		
	<p>a. The offer should also include following essential accessories and quoted preferably in Indian rupees.</p>		
	<p>b. 30 KVA reliable 3-phase UPS (only from reputed brands/ manufacturers) with one hour back up time with power output quality as per instrument's requirements should also be quoted separately.</p>		

	c. Argon Gas Cylinders: Two manifold of 6 cylinders each (12 cylinders) with auto switchover. Eight additional cylinders (for back up) must be supplied along with the instrument (total 20 Ar filled cylinders).		
	d. A fume exhaust system that comply the international standards should be supplied and installed at the site for removal of the gases emerging from MC-ICPMS system.		
	SECTION C: ADDITIONAL GENERAL REQUIREMENTS a. The technical specifications given above are minimum indicative only. Ease of operation, maintenance, use of latest technology with proven advantage and excellent after sales service facilities are important factors in evaluation process.		
	b. Name with full credentials and experience of the factory trained service engineers currently on roll in India and place of normal residency must be submitted with the offered quotation. Please indicate how many of them received training on the quoted model.		
	c. Full service manuals with complete circuit diagrams and circuit descriptions to be supplied both as hard copy and CDs, along with diagnostic tools including interface cards and software, plus any specialized mechanical tools required for instrument servicing or repair.		
	d. Where operation requires provision of standards, gases, compressed air or compressed gases, the quotation should include provision of all appropriate gas cylinders, gas lines, connectors, valves and control systems for these.		
	e. Quotation should include all cost including logistics required to complete the installation at NCAOR.		
	f. The Vendor should certify and confirm availability of spares, service support and up gradation for at least 10 years after the warranty period.		
	g. Any equipment of component procured locally and supplied with the instrument should be quoted in Indian Rupees.		
	h. List of user laboratories of similar instrument configuration and geological application must be provided with contact details (e-mail) of the person-in-charge of the instrument, model and date of installation.		

	<p>i. NCAOR may opt for demonstration of any technical specifications and performance of the quoted model any user site in India as a part of technical evaluation. Cost of travel and accommodation of NCAOR personnel will be borne by NCAOR. The vendor should facilitate demonstration.</p>		
	<p>SECTION D: Training (i) After successful installation of the system and its peripherals, selected scientific and technical personnel from NCAOR should be provided with hands-on and in-depth training on the operation, maintenance and application of the MC-ICPMS system by factory engineer for a period of not less than 15 working days. Vendor should quote all inclusive for travel, accommodation etc.</p>		
	<p>(ii) Training in routine operation and maintenance of all instruments and modules supplied, to include instruction in fault diagnosis, servicing and on-site repair procedures, to be imparted to the user scientists deputed for the same at the installation site at NCAOR.</p>		
	<p>SECTION E: Warranty Supplier should provide comprehensive onsite warranty (including parts and labour) for 3 years (36 months) including all locally supplied items after successful installation of the system. The supplier should also quote for annual service maintenance contract (breakdown visits and two service visits) for five years after the warranty period.</p>		
	<p>SECTION F: Installation Pre-installation requisites Comprehensive guidelines/requisites for development of pre-installation infrastructure, including requirement of air-conditioning, dehumidifier etc. with their specifications, to be provided. Installation: The complete installation of the supplied MC-ICPMS system should be carried out by the factory engineer deputed from the manufacturing plant. All the expenses including travel, accommodation etc. towards this should be included in the quote. It is the responsibility of the vendors to ensure that all necessary essential accessory and ancillary items are quoted for carrying out the standardization, optimization and calibration for objective applications including standards, chemicals, gases and consumables. The supplied system should be complete in itself in all respect to take up the sample analysis at the NCAOR premises. The institute shall provide none other than a “Three phase” Line and appropriate laboratory ambience.</p>		

TERMS AND CONDITIONS FOR SUBMISSION OF QUOTATION

1) **The National Centre for Antarctic and Ocean Research (NCAOR)** invites sealed quotations in two-parts from the reputed firms for the **“Supply, Installation, Commissioning & Training of Multi Collector-Inductively Coupled Plasma Mass Spectrometer (MC-ICP-MS) System”** as per the specifications given in Annexure-I.

2) The technical and financial bids should be submitted in two separate sealed covers, super scribing “Part –I Technical Bid for **“Supply, Installation, Commissioning & Training of Multi Collector-Inductively Coupled Plasma Mass Spectrometer (MC-ICP-MS) System”**, Tender No., due date and “Part-II Financial bid for **“Supply, Installation, Commissioning & Training of Multi Collector-Inductively Coupled Plasma Mass Spectrometer (MC-ICP-MS) System**, Tender No., due date. Both the bids should be kept in a single cover by super scribing tender for **“Supply, Installation, Commissioning & Training of Multi Collector-Inductively Coupled Plasma Mass Spectrometer (MC-ICP-MS) System”**, sealed and addressed to the **Director, National Centre for Antarctic & Ocean Research, Headland-Sada, Vasco-da-Gama, Goa – 403 804**. Offer sent through fax will not be accepted.

3) Overwriting and corrections should be attested properly. The bid should be complete in all respects and should be duly signed. **Incomplete and unsigned bids will not be considered at all.**

4) All relevant technical literature pertain to items quoted **with full specifications** (Drawing, if any), information about the products quoted, including brochures if any should accompany the quotation.

5) A list of **reputed clients** to whom the firm has supplied similar items to be furnished along-with the quotation.

In the TECHNICAL BID, the Bidder should furnish the Name and address of the Purchasers placed orders on similar equipment with order No, date, Description and quantity, Date of Supply alongwith Contact person Telephone No, Fax No, and e mail address of Purchaser.

The Bidder should enclose copies of Purchase Orders only in the FINANCIAL BID.

6) Quotation should be **valid for a period of 120 days** from the date of tender opening and the period of delivery required should also be clearly indicated. If the supplier fails to deliver the goods within the time to be agreed upon, for delayed deliveries and for delays in installation

(wherever applicable). NCAOR reserves the right to **levy liquidated damages** at the rate of 0.5% per week or part thereof up to a maximum of 5%.

7) The **warranty period** and the kind of **post-warranty support** should be indicated. Warranty shall commence from the date of installation and acceptance of the complete equipment supplied under the Purchase Order / Contract.

8) **Technical bid should contain EMD.**

A) Foreign Bidders shall submit **EMD** along with their tender **in the form of a bank guarantee** for a sum of US \$ 1700.00 (US \$ One Thousand Seven Hundred only) from any reputed bank (scheduled bank in India or foreign bank having operational Branch in India) initially valid for 180 days from the date of closing of the tender as per the proforma enclosed. This bank Guarantee in original shall be submitted along with the technical bid only.

B) Indian Bidders shall submit **EMD** along with their tender, **either By DD** drawn in favor of NCAOR, on any nationalized bank for a sum of Rs. 1,00,000/- (Rupees One Lakh only) payable at Vasco-da-Gama only **or in the form of a bank guarantee** for a sum of Rs. 1,00,000/- (Rupees One Lakh only) from any reputed bank (scheduled bank) initially valid for 180 days from the date of closing of the tender as per the proforma enclosed. This bank Guarantee in original shall be submitted along with the technical bid only.

Tender without EMD in the envelope containing technical bid shall be summarily rejected. The EMD of unsuccessful bidders shall be returned within 30 days of the award of contract.

The earnest money will be liable to be forfeited, if the tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of his tender.

9) Please **specify the Make/Brand** and Name of the Manufacturer with address, country of origin and currency in which rates are quoted.

10) The Purchaser requires that the bidders, suppliers and contractors observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy, the following are defined:

“Corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution:

“fraudulent practice” means a misrepresentation or omission of facts in order to influence a procurement process or the execution of contract;

“collusive practice” means a scheme or arrangement between two or more bidders, with or without the knowledge of purchaser, designed to establish bid prices at artificial, noncompetitive levels; and

“coercive practice: means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of contract;

The purchaser will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the contract in question; The Decision of Director, NCAOR shall be final and binding.

11) Bidders that doesn't manufacture the goods it offers to supply shall submit Manufacturer's Authorization form on the letterhead of the Manufacturer duly signed and stamped by a person with the proper authority to sign documents that are binding on the Manufacturer as per the following format should be submitted failing which the quotation will not be considered.

To
The Director
NCAOR
GOA

Sub: Manufacturers' Authorization form against Tender No: _____

We _____(Name of the Manufacturer) who are official manufacturers of _____(Type of goods manufactured) having factories at _____(full address of Manufacturer's factories) do hereby authorize _____(Name of the Bidder) to submit a bid against your Tender No. _____for the _____Goods manufactured by us and to subsequently negotiate and sign the contract.

We hereby extend our full guarantee and warranty with respect to the Goods offered by the above firm

Manufacturer's Name:
Signature of Authorized

representative of the Manufacturer:

Duly authorized to sign this Authorization on behalf of : _____(Name of the Bidder)

Date:

In case the bidder not doing business within India, shall furnish the certificate to the effect that the bidder is or will be represented by an agent in India equipped and able to carry out the supply, maintenance, repair obligations etc., during the warranty and post warranty period or ensure a mechanism at place for carrying out the supply, maintenance, repair obligations etc., during the warranty and post- warranty period.

12) **The order acknowledgement** should be from the principals and if the Indian Agent is empowered to quote and to furnish order acknowledgement, a copy of agreement entered by you with the Indian Agent to be furnished.

13) **Compliance Statement:** Equipments point-by-point comparison/compliance statement with **technical specification** indicated in the tender, should be enclosed along with your tender as well as any other extra features of the equipment be shown separately therein and also **compliance statement for all commercial terms** of the tender document.

14) NCAOR is not entitled to issue form “**C/D**”. No Sales Tax or any other Tax shall be payable by us unless payment of the same is specifically mentioned by the suppliers in their bids and same is legally leviable.

15) To avail duty concessions i.e. **Excise Duty** as per Govt. notification 10/97 & **Custom Duty** as per Govt. notification 51/96, NCAOR will provide exemption certificates. Hence, the rates should be split into basic cost and Excise Duty if any.

16) **Technical Bid should contain** all details and specifications of the equipment offered, delivery schedule, warranty, payment term, installation, training, post-warranty, user-list, service support **WITHOUT PRICE** and **Financial bid should contain** details of the price(s) of the item(s) quoted in the technical bid. The Technical bid should not contain any references to the pricing.

In case the technical bid contains any direct or indirect reference to quoted price the bid is liable to be rejected.

The Prices shall be quoted in Indian Rupees for offers received for supply within India and in freely convertible foreign currency in case of offers received for supply from foreign countries.

For Goods manufactured in India:

F.O.R GOA price should be indicated. However tender should contain item-wise prices including total ex-works price, Excise Duty, VAT/Taxes, Charges for Inland Transportation, Insurance and other local services required for the delivering the goods on F.O.R GOA.

17) In case of imported stores both **FOB and CIF prices upto Indian port of entry** namely Goa and for indigenous stores on F.O.R. destination basis should be indicated. However tender should contain item-wise prices including total ex-works price, overall weight & dimensions of the equipment and cost of packing forwarding, approx. cost of air-freight charges for delivery up to Goa, India.

18) A Committee constituted by the Director, NCAOR for the purpose reserves the right to open the bids. Only technical bids will be opened on the date and time mentioned in the tender document. The financial bids of those tenderers whose technical bids are found to be meeting our specifications only will be opened in their presence at date and time to be notified later.

19) The firm to the full satisfaction of the NCAOR should carry out the **installation and commissioning** at the NCAOR premises and the time-frame for the whole process should be specified in the technical bid.

20) A technical Committee constituted by the Director will assess the product supplied/installed for their quality and their conformity to the specifications provided by the firm in their quotations. Any item(s) identified by the Committee to be not as per the specifications or are found to be of inferior quality will be rejected, and the bills towards the supply will not be processed for payment till proper replacements are provided.

21) **No advance payment** will be made. Payment for indigenous stores shall be made within 30 days from the date of receipt, acceptance and satisfactory installation of equipment and incase of imported stores by **irrevocable letter of credit**. The payment will be authorized after submission of a Bank Guarantee for 10% value of the order towards warranty guarantee. The **performance Bank Guarantee** should be furnished within 15 days from the date of placement of order from a reputed bank (scheduled bank in India **or** foreign bank operating in India) valid till 60 days after the warranty period.

22) Suppliers should clearly define the mechanisms of **post-warranty** maintenance or support. Supplier should undertake to support the product for a minimum period of 5 years (post-

warranty). Post Warranty, AMC charges for a period of 3 years (annual bases) should also be quoted separately in the financial bid.

23) If the quoted item needs to be imported then the undertaking needs to be produced from the original supplier stating that Post Warranty support for a minimum period of 10 years will be provided from the original supplier to NCAOR on LC Terms of payment. If payment needs to be made and **spares will be supplied on the lowest rate quoted** than to any other customer with providing the sales price list to the NCAOR periodically as and when increase/decrease in prices.

24) Two sets of operational, service/troubleshooting manuals and diagrams to be supplied with **“Supply, Installation, Commissioning & Training of Multi Collector-Inductively Coupled Plasma Mass Spectrometer (MC-ICP-MS) System”**.

25) **The submission of tender** shall be deemed to be an admission on the part of the tenderer, had fully acquainted with the specifications, drawings etc. and no claim other than what stated in the tender shall be paid in the event of award of Purchase Order.

26) Expenditure involved towards any extra materials required for labour involved for successful installation of the equipment, if not quoted for, would have to be borne by the tenderer.

27) **Acceptance of this tender** form and submission of the quote within the stipulated time would be treated as:

a) The tenderer has understood all requirements as described in our Tender document.

b) Acceptance to provide/establish all the facilities mentioned in our tender without any price escalation, if the tenderer finds it necessary to add any hardware or software or any other materials during implementation.

c) Agreeing to execute order to the satisfaction of NCAOR or its authorized representatives within the stipulated time.

28) **Training /Installation charges** should be clearly indicated including the scope of training.

29) Tender should clearly define the **infrastructure facilities required** for installation of the equipment.

30) NCAOR will not be liable for any obligation until such time NCAOR has communicated to the successful bidder of its decision to release the Purchase Order.

31) **NCAOR will not be responsible for any postal delays.**

32) Bidders shall note that NCAOR will not entertain any correspondence or queries on the status of the offers received against this Tender Invitation.

33) Tenders from Manufacturers/Suppliers/Tenderers whose performance was not satisfactory in respect of quality of supplies and delivery schedules in any organizations, are liable for rejection. The tenders that do not comply with the above criteria and other terms & conditions are liable for rejection.

34) The Director, NCAOR does not bind to accept the lowest quotation and reserves the right to himself, to reject or partly accept any or all the quotations received without assigning any reason.

35) All disputes arising in connection with executing the purchase order will be subject to the Jurisdiction of the Courts in Goa only.

**COMMERCIAL COMPLIANCE STATEMENT FOR SUPPLY, INSTALLATION,
COMMISSIONING & TRAINING OF MULTI COLLECTOR-INDUCTIVELY COUPLED PLASMA
MASS SPECTROMETER (MC-ICP-MS) SYSTEM.**

SR. NO.	COMMERCIAL COMPLIANCE STATEMENT FOR SUPPLY, INSTALLATION, COMMISSIONING & TRAINING OF MULTI COLLECTOR-INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER (MC-ICP-MS) SYSTEM	COMPLIED/ NOT COMPLIED	EXTRA FEATURES
1	A list of reputed clients to whom the firm has supplied similar items to be furnished along-with the quotation.		
2	In the TECHNICAL BID, the Bidder should furnish the Name and address of the Purchasers placed orders on similar equipment with order No, date, Description and quantity, Date of Supply alongwith Contact person Telephone No, Fax No, and e mail address of Purchaser.		
3	The Bidder should enclose copies of Purchase Orders only in the FINANCIAL BID.		
4	Quotation should be valid for a period of 120 days from the date of tender opening and the period of delivery required should also be clearly indicated.		
5	The warranty period and the kind of post-warranty support should be indicated. Warranty shall commence from the date of installation and acceptance of the complete equipment supplied under the Purchase Order / Contract.		
6	Foreign Bidders shall submit EMD along with their tender in the form of a bank guarantee for a sum of US \$ 1700.00 (US \$ One Thousand Seven Hundred only) from any reputed bank (scheduled bank in India or foreign bank having operational Branch in India) initially valid for 180 days from the date of closing of the tender as per the proforma enclosed. This bank Guarantee in original shall be submitted along with the technical bid only.		
7	Indian Bidders shall submit EMD along with their tender, either By DD drawn in favor of NCAOR, on any nationalized bank for a sum of Rs. 1,00,000/- (Rupees One Lakhe only) payable at Vasco-da-Gama only or in the form of a bank guarantee for a sum of Rs. 1,00,000/- (Rupees One Lakhe only) from any reputed bank (scheduled bank) initially valid for 180 days from the date of closing of the tender as per the proforma enclosed. This bank Guarantee in original shall be submitted along with the technical bid only.		
8	Tender without EMD in the envelope containing technical bid shall be summarily rejected. The EMD of unsuccessful bidders shall be returned within 30 days of the award of contract.		
9	Please specify the Make/Brand and Name of the Manufacturer with address, country of origin and currency in which rates are quoted.		
10	The order acknowledgement should be from the principals and if the Indian Agent is empowered to quote and to furnish order acknowledgement, a copy of agreement entered by you with the Indian Agent to be furnished.		
11	Compliance Statement: Equipments point-by-point comparison/compliance statement with technical specification indicated in the tender, should be enclosed along with your tender as well as any other extra features of the equipment be shown separately therein and also compliance statement for all commercial terms of the tender document.		
12	NCAOR is not entitled to issue form "C/D" . No Sales Tax or any other Tax shall be payable by us unless payment of the same is specifically mentioned by the suppliers in their bids and same is legally leviable.		
13	To avail duty concessions i.e. Excise Duty as per Govt. notification 10/97 & Custom Duty as per Govt. notification		

	51/96, NCAOR will provide exemption certificates. Hence, the rates should be split into basic cost and Excise Duty if any.		
14	Technical Bid should contain all details and specifications of the equipment offered, delivery schedule, warranty, payment term, installation, training, post-warranty, user-list, service support WITHOUT PRICE and Financial bid should contain details of the price(s) of the item(s) quoted in the technical bid. The Technical bid should not contain any references to the pricing.		
15	In case the technical bid contains any direct or indirect reference to quoted price the bid is liable to be rejected.		
16	The Prices shall be quoted in Indian Rupees for offers received for supply within India and in freely convertible foreign currency in case of offers received for supply from foreign countries. For Goods manufactured in India:		
17	F.O.R GOA price should be indicated. However tender should contain item-wise prices including total ex-works price, Excise Duty, VAT/Taxes, Charges for Inland Transportation, Insurance and other local services required for the delivering the goods on F.O.R GOA.		
18	In case of imported stores both FOB and CIF prices upto Indian port of entry namely Goa and for indigenous stores on F.O.R. destination basis should be indicated. However tender should contain item-wise prices including total ex-works price, overall weight & dimensions of the equipment and cost of packing forwarding, approx. cost of air-freight charges for delivery up to Goa, India.		
19	A Committee constituted by the Director, NCAOR for the purpose reserves the right to open the bids. Only technical bids will be opened on the date and time mentioned in the tender document. The financial bids of those tenderers whose technical bids are found to be meeting our specifications only will be opened in their presence at date and time to be notified later.		
20	The firm to the full satisfaction of the NCAOR should carry out the installation and commissioning at the NCAOR premises and the time-frame for the whole process should be specified in the technical bid.		
21	A technical Committee constituted by the Director will assess the product supplied/installed for their quality and their conformity to the specifications provided by the firm in their quotations. Any item(s) identified by the Committee to be not as per the specifications or are found to be of inferior quality will be rejected, and the bills towards the supply will not be processed for payment till proper replacements are provided.		
22	No advance payment will be made. Payment for indigenous stores shall be made within 30 days from the date of receipt, acceptance and satisfactory installation of equipment and incase of imported stores by irrevocable letter of credit .		
23	The performance Bank Guarantee should be furnished within 15 days from the date of placement of order from a reputed bank (scheduled bank in India or foreign bank operating in India) valid till 60 days after the warranty period.		
24	Suppliers should clearly define the mechanisms of post-warranty maintenance or support. Supplier should undertake to support the product for a minimum period of 5 years (post-warranty). Post Warranty, AMC charges for a period of 3 years (annual bases) should also be quoted separately in the financial bid.		
25	If the quoted item needs to be imported then the undertaking needs to be produced from the original supplier stating that Post Warranty support for a minimum period of 10 years will be provided from the original supplier to NCAOR on LC Terms of payment. If payment needs to be made and spares will be supplied on the lowest rate quoted than to any other customer with providing the sales price list to the NCAOR periodically as and when increase/decrease in prices.		

26	Two sets of operational, service/troubleshooting manuals and diagrams to be supplied with “SUPPLY, INSTALLATION, COMMISSIONING & TRAINING OF MULTI COLLECTOR-INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER (MC-ICP-MS) SYSTEM”		
27	The submission of tender shall be deemed to be an admission on the part of the tenderer, had fully acquainted with the specifications, drawings etc. and no claim other than what stated in the tender shall be paid in the event of award of Purchase Order.		
28	Expenditure involved towards any extra materials required for labour involved for successful installation of the equipment, if not quoted for, would have to be borne by the tenderer.		
29	Acceptance of this tender form and submission of the quote within the stipulated time would be treated as: <ul style="list-style-type: none"> • The tenderer has understood all requirements as described in our Tender document. • Acceptance to provide/establish all the facilities mentioned in our tender without any price escalation, if the tenderer finds it necessary to add any hardware or software or any other materials during implementation. • Agreeing to execute order to the satisfaction of NCAOR or its authorized representatives within the stipulated time. 		
30	Training /Installation charges should be clearly indicated including the scope of training.		
31	Tender should clearly define the infrastructure facilities required for installation of the equipment.		

QUESTIONNAIRE

- a. **Name of the Manufacturer / Tenderer.**
- b. **Full postal address with Telephone, Telefax, Email.**
- c. **Please specify whether Public Limited, Company, Private Organization or Partnership Firm.**
- d. **Nature of the Business.**
- e. **Date of Establishment.**
- f. **Present Turnover.**
- g. **Permanent Income Tax Ref. No.**
- h. **C.S.T. / S.T. NO.**
- i. **Address & Telephone Nos. Of your branch office in GOA (please specify whether Distributing/Servicing/Marketing the products).**
- j. **Technical Compliance statement.**
- k. **Commercial Compliance statement.**
- l. **Reference of reputed Customers.**
- m. **Details of the highest order executed and value thereof.**
- n. **Authorization from Manufacturer/Supplier attached.**
- o. **Tender fee submitted/enclosed.**
- p. **E.M.D. attached with TECHNICAL BID.**
- q. **Infrastructure facilities required for installation & commissioning attached.**
- r. **Technical Specifications/Literature/Brochure attached.**
- s. **Tender Acceptance.**

TENDER ACCEPTANCE UNDERTAKING

To

The Director,
NCAOR, Headland Sada,
Vasco – Goa.

Having examined the tender document for “**SUPPLY, INSTALLATION, COMMISSIONING & TRAINING OF MULTI COLLECTOR-INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER (MC-ICP-MS) SYSTEM**” we the undersigned hereby offer to supply the equipment in conformity with all specifications and conditions set out in the tender document.

We enclosed all the relevant documents as per the tender.

We understand that you are not bound to accept the lowest or any tender received.

Date :

(Signature of Bidder)

Name :

Designation :

Seal

BANK GUARANTEE FORMAT FOR FURNISHING EMD

To

**NATIONAL CENTRE FOR ANTARCTIC & OCEAN RESEARCH
Headland Sada, Vasco-da-Gama, GOA 403 804, INDIA**

Whereas _____
(Hereinafter called the "tenderer")
has submitted their offer dated _____
for the supply of _____
(Herein after called the "tender")

WE _____ of having our registered office
At _____ are bound unto the NATIONAL
(Hereinafter called the Bank)

CENTRE FOR ANTARCTIC & OCEAN RESEARCH, Ministry of Earth Sciences, Govt. Of India having its office at Headland Sada, Vasco Goa 403 804, India (herein after called NCAOR which expression shall unless repugnant to the context or meaning thereof include all its successors, administrators, executors and assigns) in the sum of _____ for which payment will and truly to be made to. NCAOR, the Bank binds itself, its successors and assigns by these presents. Sealed with the common seal of the said Bank this _____ day of _____ 2015.

THE CONDITIONS OF THIS OBLIGATION ARE:

- 1) If the tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.
- 2) If the tenderer having been notified of the acceptance of his tender by NCAOR during the period of its validity.
 - 2.a) If the tenderer fails to furnish the Performance security for the due performance of the contract.
 - 2.b) Fails or refuses to execute the contract

We undertake to pay NCAOR up to the above amount upon receipt of its first written demand, without NCAOR having to substantiate its demand, provided that in its demand the NCAOR will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition or conditions.

This guarantee is valid until the _____ day of _____ 2015.

Signature of the bank

NATIONAL CENTRE FOR ANTARCTIC & OCEAN RESEARCH
 (Ministry of Earth Sciences, Govt. Of India)
 Headland Sada, Vasco-da-Gama GOA 403 804, INDIA
 Tel: 91- (0) 832 2525571 Telefax: 91- (0) 832 2525573
 Email: warlu62@ncaor.gov.in Website: www.ncaor.gov.in

GLOBAL TENDER

Director, National Centre for Antarctic & Ocean Research (NCAOR) invites sealed tenders in two-parts (part I – Technical bid & part II Financial bid) super scribing Tender No. Item and due date from well established/ reputed manufacturers / authorized and bonafide vendors for supply of the following:-

Sl. No	Tender No.	Item Description	Qty.	Cost of Tender Doc.		EMD	
				Rs.	US\$	Rs.	US\$
1	NCAOR/LAB-2343/PT-11	SUPPLY, INSTALLATION, COMMISSIONING & TRAINING OF MULTI COLLECTOR-INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER (MC-ICP-MS) SYSTEM	1 NO	2,000.00	50.00	1,00,000.00	1700.00

Last date for issue of tender documents : **03.08.2015**

Last date for submission of quotation : **04.08.2015**

The details of tender documents are also available in our website <http://www.ncaor.gov.in> and Central Public Procurement Portal <http://eprocure.gov.in>. Interested suppliers may download the details and submit the quotation on or before the due date along with tender fee.

The quotation without tender fee will not be considered.

Tender forms can be obtained from the Procurement section of NCAOR on all working days either by post or in person between 1000 – 1600 hours on payment of tender fees in the form of crossed Demand Draft payable at Vasco-da-gama only, from a Nationalized bank drawn in favor of NCAOR along with separate requisition indicating tender number and item. Tender forms can be obtained by speed post by remitting Rs. 50/- by Indian bidders and US\$ 15.00 by Foreign bidders in addition to the cost of tender documents.

The Director, NCAOR is not responsible for any transitional/postal delays.

The quotations will be **opened on 05.08.2015** in the presence of tenderers or their authorized representatives.

The Director, NCAOR reserves the right to accept or reject any quotation in full or part thereof without assigning any reason.

Sd/-
For & on behalf of NCAOR